

CLAIMS

1. A printhead assembly comprising:
an ink supply coupled to the printhead assembly for providing
ink;
5 a nozzle member coupled to the ink supply and having plural
nozzles; and
a controller that controls ejection of ink from the plural nozzles to
maintain accuracy and precision of ink droplet placement by simultaneously
limiting the number of nozzles firing and decreasing a data rate of firing of
10 each nozzle.

2. The printhead assembly of claim 1, wherein data rates, memory,
power and ink supply are decreased.

3. The printhead assembly of claim 1, further comprising a heater
array with heater elements for heating the ink, wherein the controller selects
elements in the heater array to be fired.

4. The printhead assembly of claim 3, wherein the controller
20 decreases the data rate to the heater element array so that the firing rate by
the nozzle member is decreased.

5. The printhead assembly of claim 4, wherein the printhead
assembly requires less power and less ink when the data firing rate
25 decreases.

6. The printhead assembly of claim 1, wherein the controller
determines a firing order of the nozzles in at least one of a single or multiple
swath.

7. The printhead assembly of claim 1, wherein a location of a dot
produced by the nozzle member is changed in a column by changing a
sequence in which the nozzles are fired.

8. The printhead assembly of claim 1, wherein a predefined number of nozzles are offset so that horizontal print data is encoded in a vertical axis, wherein a resolution of a print swath is maintained in a horizontal axis and the data rate required to produce a printed output is decreased by a factor of 2.

5

9. The printhead assembly of claim 1, the controller determines a firing order of the nozzles to produce an ordered pattern that reduces banding on a print media.

10

10. A method for using low data rates for a high nozzle per inch [NPI] printhead having a heater array with heater elements, comprising:
receiving data related to the printhead stored in memory;
assigning primary primitive addresses for the heater array based the data; and

15

analyzing the data and the primitive address assignments to determine a firing pulse rate of the heater elements in the heater array.

20

11. The method of claim 10, further comprising assigning pixel locations for data that locations are registered for at respective primitive addresses

25

12. The method of claim 10, further comprising activating secondary adjacent primitive addresses during a same time frame as the primary primitive addresses.

30

13. The method of claim 10, further comprising changing a sequence in which the nozzles are fired so that a location of a dot produced by the nozzles is changed in a column.

14. The method of claim 10, further comprising offsetting a predefined number of nozzles so that horizontal print data is encoded in a vertical axis, wherein a resolution of a print swath is maintained in a horizontal axis and the data rate required to produce a printed output is decreased by a factor of 2.

15. A method for producing accurate ink drop placement produced by a printhead having plural nozzles, the method comprising:
providing a supply of ink to the printhead;
controlling ejection of the ink from the plural nozzles to maintain
accuracy and precision of ink droplet placement; and
simultaneously limiting the number of nozzles firing and
selectively decreasing a data rate of firing of each nozzle.

16. The method of claim 15, further comprising heating the ink with a heater array having heater elements and selecting elements in the heater array to be fired.

17. The method of claim 16, further comprising decreasing the data rate to the heater element array so that the data rate of firing by the nozzle member is decreased.

18. The method of claim 14, further comprising changing a sequence in which the nozzles are fired so that a location of a dot produced by the nozzles is changed in a column.

19. The method of claim 14, further comprising offsetting a predefined number of nozzles so that horizontal print data is encoded in a vertical axis, wherein a resolution of a print swath is maintained in a horizontal axis and the data rate required to produce a printed output is decreased by a factor of 2.

20. The method of claim 14, further comprising determining a firing order of the nozzles to produce an ordered pattern that reduces banding on a printed output produced by the printhead.